



Pittsburgh Regional Healthcare Initiative

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The wheelchair conundrum

What if you could work in a hospital where, every time a patient needed transport, a clean wheelchair of the correct size and configuration was immediately available?

“I’d pass out from disbelief . . . and delight,” said one nurse. “Never happen,” said another.

“The issue of wheelchair availability is greeted with emotion at every facility,” says Peter Perreiah, PRHI Team Leader at the Veteran’s Administration Pittsburgh Healthcare System (VAPHS) Learning Unit on the 4 West unit. “Wheelchairs are a big system problem.”

The VAPHS Learning Unit on 4 West has been methodically solving the wheelchair problem for over a year now. Why so long? As with most problems that appear to be small, this issue revealed a larger system problem. From 4 West, observations and problem-solving quickly extended to all three VA locations: the acute care hospital on University Drive; the H.J. Heinz long-term care facility; and the Highland Drive psychiatric facility.

The guiding principle is the ideal: *Why can’t we provide clean wheelchairs where and when they are needed, in the appropriate size and configuration to meet individual patient needs?*

The wheelchair problem has three components: 1) **supply**, having enough wheelchairs when and where needed; 2) **fit**, having a wheelchair of proper size and configuration; and 3) **cleanliness**, ensuring that the wheelchairs are in a condition unlikely to transfer contaminants.

This month, *PRHI Executive Summary* describes how the VA system addressed volume and fit. Next month’s edition will describe how the team found a way to provide reliable cleaning for all wheelchairs.

Problem: not just any wheelchair

A correct wheelchair is more than a matter of comfort: it can affect patient health and safety.

Getting patients out of bed and maintaining their physical activity using wheelchairs can play a vital role in reducing the risk of respiratory and urinary tract infections, as well as improving their mental outlook.

Understanding individual patient needs is the first step in improving physical activity. Larger patients require wider wheelchairs. Diabetic patients often need wheelchairs with leg rests to protect their vulnerable feet. Patients undergoing hip replacement need wheelchairs with reclining backs to avoid postoperative dislocation, while cancer patients may require smaller wheelchairs.

At the H.J. Heinz long-term care facility, patients require wheelchairs in which they can sit comfortably for several hours, wheelchairs with substantial padding and high backs, again in various sizes. Quick-release seat belts prevent patients from falling out of wheelchairs, and anti-tipping devices prevent the chairs from tumbling over backward. Altogether, the VA system requires wheelchairs of about a dozen different configurations.

Problem: supply and demand

On an average day, the post-surgical 4 West unit serves about 25 patients. Yet on average, those patients will need transportation to more than 40 appointments—from physical therapy to imaging to hemodialysis. At most hospitals, wheelchairs are shared equipment, and that sharing can create long waits or searching. Too often, patients were late to appointments across the hospital, creating delays in other departments. Across the entire hospital, wheelchair delays accounted for many lost hours.

Problem: hiding and hoarding

At hospitals everywhere, “hiding and hoarding” are common behavior. When the system does not supply what is needed when it’s needed, people learn to distrust the system. In a heroic attempt to provide the patients wheelchairs on demand, staff sometimes stash wheelchairs in closets, bathrooms or empty rooms, where they can’t be seen and used by others. The problem is, even if there are technically enough wheelchairs in a hospital, hoarding can *create* a wheelchair shortage.

Observation: inventory

One example typified the problem at the acute-care hospital: of five reclining wheelchairs purchased just months earlier, only one remained. With some sleuthing, the problem-solving team discovered that, when patients had been transferred from the acute care hospital to the long-term care facility, they had been transported in the reclining wheelchairs, which then stayed on the receiving end. As a result, both the long-term care facility and psychiatric hospitals had a plethora of wheelchairs that were generally the wrong kind for their patients. Their problem was finding storage for the unwanted wheelchairs because no system was in place to return wheelchairs to the acute care hospital.

Experimenting with solutions

But how can healthcare workers know which wheelchair belongs where?

After cleaning all of the chairs in the system, the problem-solvers associated unique wheelchair colors with each facility by applying labels on the side panels and stenciling the seat backs. In this way whenever a stray wheelchair was spotted on a unit, healthcare workers would immediately know if it needed to be returned to its home facility.

The problem-solving team next identified convenient public places for wheelchairs to be placed between uses. At the acute-care hospital, the group studied the hospital layout, identifying traffic patterns, congregating areas and so on. They worked with people in every unit, from inpatient nursing to nuclear medicine, to define the best

places to locate wheelchairs. Together they designated 30 convenient Wheelchair Courtesy Points throughout the hospital. The most significant stores are near the main entrance, in large elevator lobby and in a recreation room. Escorts now return wheelchairs to the forward staging areas in a predictable pattern.

At all facilities, wheelchairs from transferred patients are cleaned and collected at transfer points near the loading docks. Twice a week, a truck that brings supplies also returns wheelchairs to their home facilities.

At the long-term care facility, physical therapists assess patients’ wheelchair needs within 24 hours of arrival and issue appropriately configured chairs to meet their individual needs. When a patient is discharged, housekeeping staff clean the wheelchair, mechanics checks it and return it to Physical Therapy for re-issue.

The VA did make a one-time substantial investment in new wheelchairs to have sufficient number and variety of wheelchairs to meet the needs of long-term patients. However, the data show that the recirculation system and Wheelchair Courtesy Points are working. More patients are on time for their appointments, and less-quantifiable outcomes, such as patient comfort and worker satisfaction, also appear to have improved. Finally, the clear VA identification on the wheelchairs has already paid off: dozens of chairs have been returned to the hospital that would have been lost from the VA system in the past. ☞

Problem: wheelchairs often unavailable when & where needed



Solution: A new system for tracking, storing and cleaning wheelchairs in all three facilities, means staff can always have a wheelchair when and where needed. Here, wheelchairs are stored at a main entrance.

Wheelchair conundrum: Part 2

Why can't we provide clean wheelchairs for patients when and where they need them?
 Answering that seemingly basic question meant tackling—and solving—a thorny system problem at the Veteran's Administration Pittsburgh Healthcare System (VAPHS), a problem encountered in hospitals everywhere.

"Hospital staff used to spend a lot of time looking for wheelchairs," says Peter Perreiah, PRHI Team Leader at the VAPHS Learning Unit on 4 West, "We had to do both: get the right wheelchairs available for patients, and free up the staff to focus on patient care instead of hunting for wheelchairs."

The quest to provide wheelchairs as needed, in specific configurations for different patients, led the problem-solving team on a year-long odyssey through all three VA locations: the acute care hospital on University Drive; the H.J. Heinz long-term care facility; and the Highland Drive psychiatric facility.* "Finding" wheelchairs meant finding time—a precious commodity for busy healthcare workers.

Experiment: borrow a cart washer

Presenting clean wheelchairs to staff and patients is important. The group hit upon the idea of using a cart washer in another area of the hospital to clean the wheelchairs thoroughly. The cart washers, enclosed units similar to dishwashers, use high-pressure hot water to "detail" the chairs. During off hours, the wheelchairs were processed one by one, and in 12 days, the whole fleet had been washed.

The effect was dazzling—wheelchairs that looked brand new.

Experiment: try a portable cart washer

Borrowing washers from another unit wasn't viewed as a long-term solution. It was daunting to trek a hundred-plus wheelchairs to one place in the hospital. Instead, the team tried a portable cart washing unit capable of turning out a clean wheelchair every four minutes. A portable washer could be moved to the wheelchairs, instead of vice versa.

In the end, only two portable cart washers were needed to service the entire wheelchair fleet. One is housed at the main University Drive hospital; the other is at the Heinz long-term care facility.

In some units, plumbing was readily available. In others, a simple plumbing retrofit met the need. The procedure began to work: the group called ahead of time, giving the unit advance notice that the cart washer would be available on-site. Two-person teams did the work, with one retrieving chairs and one monitoring the wash cycle.

At University Drive, the group quickly discovered that the optimal time for cleaning the chairs was during the evenings, when the clinics were closed, there were fewer calls for wheelchairs, and the hospital was less congested.

Washing on schedule; washing on demand

Within several days of the cart washer's arrival, each of the over 200 wheelchairs at the Heinz long-term care facility was cleaned. Residents at the facility spend most of their days in the wheelchairs, so frequent cleaning and maintenance is a must for patients' comfort and wellbeing.

The housekeeping staff at Heinz established a monthly schedule for washing and inspecting every wheelchair. As it turns out, the chairs are staying clean longer than expected at Heinz, and the staff is adjusting the regular cleaning schedule.

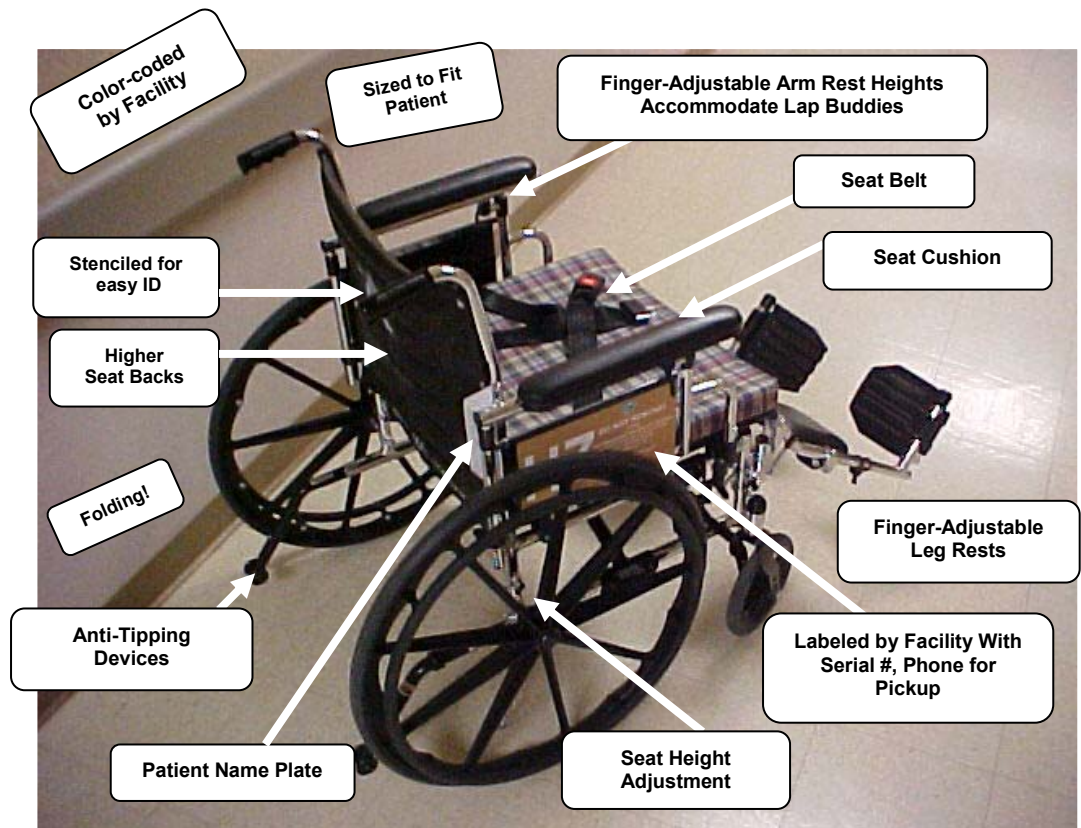
The housekeeping staff also formalized procedures for urgent need. When a wheelchair needed immediate attention, the housekeeping staff comes promptly to clean it.

Staff at each hospital have now developed cleaning patterns based on patient usage. For example, at Heinz, where long-term care patients virtually “live” in their wheelchairs for hours each day, cleaning is more frequent. At University Drive, the cleaning schedule accommodates acute care patients who use wheelchairs intermittently for transport between units.

Creating value

Keeping the safety and comfort of patients in the forefront creates value in several ways. Not only are patients more comfortable, they arrive

at appointments on time in clean equipment. Workers recover time that had been spent looking for and waiting for wheelchairs. Freeing up time for patient care adds meaning to their work, and adds value for every patient. Workers report satisfaction with this new system, and continue giving their input to fine-tune it. ❧



The VA's investment in new wheelchairs stabilized a chronic system shortage. The new chairs are color-coded by facility. The diagram above shows the special, patient-centered features of the most intensively used wheelchairs in the system, those at the Heinz long-term care facility. Patients at Heinz “live” in their wheelchairs every day, necessitating frequent cleaning.

